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Technology advances may improve defence in conflict zones

Military personnel could be better defended in war zones thanks to a £4 million plan to help soldiers assess their surroundings.

Researchers will develop new software to process information acquired from the huge range of sensors present in the modern battlefield – ranging from radar and sonar to mobile phones.

The aim of the five-year project is to enable operatives to quickly analyse risk and respond to threats.

Engineers at the University of Edinburgh and Heriot-Watt University, who are developing the systems, hope they will have potential applications for land, sea and airspace.

Researchers will seek to create software that can quickly and accurately assimilate signals from many sources over a wide area, enabling military personnel to respond rapidly when necessary.

Key challenges to be overcome include picking out significant signals, which may be faint, or overlapping, amid lots of background signal noise.

Operatives also may need to track signals that are shifting, for example from moving objects under surveillance, or from changing radio frequencies.

Researchers will also aim to develop small, lightweight computer systems that can easily manage the large amounts of data produced in a military situation.

The five-year project, entitled Signal Processing in the Networked Battlespace, is led by the University Defence Research Collaboration (UDRC) on Signal Processing and is funded by the Ministry of Defence and the Engineering and Physical Sciences Research Council.

Mike Davies, Director of the UDRC, said: “The modern-day conflict zone is awash with sensors, from mobile phones to high-end radars. Operatives in the field need technology that can help to identify and assess threats, housed in computing equipment that is portable and easy to manage.”

Andrew Baird, Defence Science and Technology Laboratory Senior Fellow and UDRC Technical Lead, said: “Signal processing is a core technology for defence and is vital to

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successful sensing, information management and military decision making for space, air, land and maritime environments. Together with EPSRC, we are very pleased to support both of the consortia in the UDRC so that the Ministry of Defence can continue to benefit from the latest developments in the form of new and innovative solutions to current and future defence challenges. The unique blend of academic, industrial and government participation in the UDRC offers a new and exciting model for low technology readiness level (TRL) research.”

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